Unit 3 Waves Study Guide **Name: _____**

1. **Draw and label the 5 parts of a transverse wave.**

2. **Draw a longitudinal wave and label compression and rarefaction.**

3. **Compare and contrast a mechanical wave and an electromagnetic wave.**

4. **Draw the electromagnetic spectrum, including the 7 types, a representation of wavelength, and label the highest/lowest frequency and the highest/lowest energy.**

5. **List the 7 parts of the electromagnetic spectrum and a practical use for each one.**
   (radio waves = cell phones)

6. **Draw a diagram representing reflection and give an example of reflection for sound waves and light waves.**

7. **Draw a diagram representing refraction and explain how waves are refracted.**

8. **Explain the difference between absorption and transmission.**

9. **Explain the difference between refraction and diffraction.**

10. **Explain why we see different colors.**

11. **Define medium/media.**

12. **What determines the speed of an electromagnetic wave?**

13. **Explain how density of the medium affects the speed of mechanical (sound) waves.**

14. **Explain how density of the medium affects the speed of electromagnetic (light) waves.**

15. **Explain how wavelength and frequency affects the energy of a wave.**

16. **Explain how changes in amplitude affect the energy of light and sound waves.**

17. **Draw and label a diagram showing how light moves through a convex lens. List uses of a convex lens.**

18. **Draw and label a diagram showing how light moves through a concave lens. List uses of a concave lens.**

19. **Explain the difference between a real and virtual image. What type of lens produces real images?**

20. **Describe what an image would look like through a convex lens.**

21. **Describe what an image would look like through a convex lens.**